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socket.³ A two and one half volt tungsten bulb *L*, run by dry cell batteries furnishes the light. Immediately in front of the light a removable metal diaphragm, *D*, is inserted through a slot cut in the side of the tube. The aperture in the diaphragm has, for the sake of convenience and clearness in drawing the figure, been represented much larger than it is desirable to make it. A circular aperture of from one half a millimeter to a millimeter in diameter is a convenient size. If it is desirable to change the size of the light spot, a set of diaphragms of various sizes can easily be made. A second diaphragm, *G*, made of black cardboard and held in place by being cemented on to a cork collar should be inserted at the lower end of the tube carrying the light. This diaphragm serves to cut out any reflection from the inside of the tube. Its aperture should be about five times the diameter of that in the diaphragm, *D*. A low-power objective will be found most serviceable for projecting the light, as it brings it to focus at a distance from the microscope sufficient to allow the experimenter a clear field of vision in directing the spot. It has also the advantage of a greater depth of focus than a high power objective, making it much easier to keep the light spot in sharp focus on a moving animal. The adjustable *A** lenses are of about the right magnifying power and offer the additional advantage of allowing considerable variation in the size of the light spot without a change of diaphragms.

The spot of light produced by this apparatus is, of course, an image of the portion of tungsten filament not cut out by the diaphragm, *D*, reduced as many times as the objective magnifies, and projected at the focal point of the objective. By the use of a moderately high-powered lens the spot can be made as small as it is possible to follow with the naked eye, and absolutely without halo if the diaphragms are properly adjusted. It is at the same time very brilliant, and will be found to elicit a marked

³Sockets of a size which fits readily into a microscope and which receive the standard sized flash-light bulbs can be obtained of any electrical supply house under the name of "telephone booth sockets."

response from forms which are at all sensitive to stimulation by light. With it I have forced blow-fly larvæ to crawl in figure-of-eight loops only five or six centimeters in diameter.

In using the light to follow a moving animal, the barrel of the microscope is removed from the stand and held in the hand like a pencil. One can in this way direct the light with great ease and precision. I have found it so handled, very satisfactory both as a means of exploring for photosensitive areas and as a means of subjecting a limited region to continued stimulation while maintaining the surrounding tissues unstimulated.

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THE AMERICAN PHYSIOLOGICAL SOCIETY

THE 27th annual meeting was held in the physiological laboratories of the Washington University Medical School, St. Louis, Mo., December 28-31, 1914. Fifty-six of the societies' 208 members were present. Five scientific sessions were held, three of these being joint meetings with the other societies of the federation, at which the following papers and demonstrations were presented:

W. B. Cannon, C. A. Binger and R. Fitz, "Experimental Hyperthyroidism."

H. R. Basinger and A. L. Tatum, "Studies on Experimental Cretinism."

W. L. Gaines, "The Action of Pituitrin on the Mammary Gland."

George B. Roth, "The Several Factors Involved in the Standardization of Pituitary Extracts."

H. C. Dallwig, A. C. Kolls and A. S. Loevenhart, "The Relation between the Erythrocytes and the Hemoglobin to the Oxygen of the Respired Air."

J. A. E. Eyster and W. J. Meek, "The Path of Conduction for the Cardiac Impulse between the Sino-auricular and the Auriculo-ventricular Nodes."

C. Brooks and A. B. Luckhardt, "An Experimental and Critical Study of Blood Pressure Methods."

F. C. Becht and M. McGuigan, "Mechanical Factors in the Flow of Cerebro-spinal Fluid."

Katherine R. Drinker and C. K. Drinker, "The Effect of Rapid and Progressive Hemorrhage upon the Factors of Coagulation."

F. C. McLean, "On the Concentration of Sodium Chloride in the Serum and its Relation to the Rate of Excretion in Normal and Diabetic Men."

F. S. Lee and D. J. Edwards, "The Action of Certain Atmospheric Conditions on Blood Pressure and Heart Rate."

M. L. Fleisher and Leo Loeb, "The Lytic Action of Tissues on Blood Coagulum."

Ida H. Hyde, "The Influence of Light on the Development of Vorticella."

A. L. Beifeld, H. Wheelon and C. R. Lovelette, "The Effect of Pancreas Extract on Sympathetic Irritability."

B. H. Schlomovitz, J. A. E. Eyster and W. J. Meek, "Distribution of Chromotropic Vagus Fibers within the Sino-auricular Node."

Ida H. Hyde, "The Relation of the Nervous System to a Tunicate Larva."

J. R. Murlin and B. Kramer, "The Influence of Sodium Carbonate on the Glycosuria, Hyperglycemia and the Respiratory Metabolism of Depancreatized Dogs."

J. J. R. Macleod, "The Possibility that some of the Hepatic Glycogen may Become converted into Other Substances than Dextrose."

R. T. Woodyatt, "Narcotics in Phlorhizin Diabetics."

R. S. Hoskins, "Adrenal Deficiency."

H. McGuigan, "Hypoglycemia."

J. Auer and F. L. Gates, "Some Effects of Adrenalin when Injected into the Respiratory Tract."

R. W. Keeton and F. C. Koch, "The Distribution of Gastrin in the Body."

F. T. Rogers and L. L. Hardt, "The Relation of the Digestion Intractions to the Hunger Contractions of the Stomach (Dog, Man)."

F. D. Zeaman, J. Kohn and P. E. Howe, "Recuperation: Nitrogen Metabolism of a Man when Ingesting Successively a Non-protein and a Normal Diet after a Seven-day Fast."

H. C. Bradley, "Some Studies in Autolysis."

H. McGuigan and C. L. V. Hess, "The Diastase of the Blood."

W. E. Burge, "The Rate of Oxidation of Enzymes and their Corresponding Pro-enzymes."

C. Voegtlin, "The Harmful Effect of an Exclusive Vegetable Diet."

E. L. Opie and L. B. Alford, "Fat Infiltration of the Liver and Kidney induced by Diet."

V. H. Mottram, "On the Nature of the Hepatic Fatty Infiltration in Late Pregnancy and Early Lactation."

F. B. Kingsbury and E. T. Bell, "The Synthesis of Hippuric Acid in Experimental Tartrate Nephritis in the Rabbit."

C. Brooks and A. B. Luckhardt, "Blood Pressure Methods."

J. Erlanger and W. E. Garrey, "Demonstration of a Point-to-point Method for Analyzing Induction Shocks by Means of the String Galvanometer."

B. M. Patten, "A Device for Projecting a Small Spot of Light Suitable for Exploring Photo-sensitive Areas."

S. Amberg and D. McClure, "Demonstration of the Effect of Sodiumiodoxybenzoate on Inflammation Caused by Mustard Oil."

Worth Hale, "An Arrangement of the Porter Clock to give Three Time Intervals at the Same Time."

F. L. Gates, "A Portable Respiratory Machine Furnishing Continuous, Intermittent and Remittent Streams of Air."

P. A. Shaffer, "The Determination of Blood Sugar."

Eight papers were placed on the program to be read by title only. But besides these eight papers, sixteen additional communications placed on the program to be reported were read by title only, owing to the authors being absent from the meeting. It needs scarcely be pointed out that the failure of these 16 papers seriously marred the scientific program. The secretary hopes that this meeting will stand as the high water mark of the disgraceful habit of reporting papers to be read without going to the meeting to present them. In cases of unavoidable absence through sickness, the secretary should be notified, so that readjustments may be made even after the program is in print. And as for those who ask to be placed on the program and then choose to stay away from the meetings the secretary feels that the annual meetings of our society are too important to be made the subject of practical jokes of that type.

Some important changes in the constitution were adopted. The importance of research as *the* qualification for election to membership in the society was more explicitly emphasized. Voting by mail or proxy was abolished. The management of the *American Journal of Physiology*, owned and published by the society, was entrusted to the council; and the council was enlarged from five to seven members.

In recognition of Dr. W. T. Porter's great service to physiology in founding the *American Jour-*

nal of Physiology and successfully publishing it for many years, the council was entrusted to arrange for the dedication of a volume of the *Journal* to Dr. Porter.

The following persons were elected to membership in the society: A. Arkin, University of West Virginia; A. T. Cameron, University of Manitoba; P. M. Dawson, University of Wisconsin; C. M. Gruber and E. B. Krumbhaar, University of Pennsylvania; E. N. Harvey, Princeton University; H. L. Higgins, nutrition laboratory of the Carnegie Institution; Jessie L. King, Goucher College; F. C. McLean, Rockefeller Institute; S. Morgulis and E. L. Scott, Columbia University; G. B. Roth, Hygienic Laboratory, Washington.

Officers for 1915

President—W. B. Cannon.

Secretary—C. W. Greene.

Treasurer—J. Erlanger.

Additional Members of the Council—W. H. Howell, J. R. Macleod, W. E. Garrey, W. J. Meek.

Despite the unusual defaults in the matter of the scientific program, and the presence of only a few members from the Atlantic seaboard, the meeting was a success, due largely to the considerate efforts and the generous hospitality of the "local committee." The opportunity to inspect the new laboratories and the hospitals of Washington University Medical School by itself more than compensated for the trip to St. Louis. It appears that this school has actually made an advance beyond the "stone age" of the American universities in general. In material equipment for medical research and teaching, Washington University Medical School is second to none, if not superior to all other medical schools in this country.

A. J. CARLSON,
Secretary

UNIVERSITY OF CHICAGO,
January, 1915

THE AMERICAN MATHEMATICAL SOCIETY

THE twenty-first annual meeting of the society was held at Columbia University on Friday and Saturday, January 1-2, 1915, the attendance at the four sessions including 95 members, a considerable increase over previous records. The occasion was especially marked by the delivery of President Van Vleck's retiring address, the subject of which was "The rôle of the point-set theory in geometry and dynamics."

At the opening session President Van Vleck took

the chair, being relieved by Vice-president L. P. Eisenhart and at the closing session by the President-elect, Professor E. W. Brown, and Vice-president Veblen. The following new members were elected: Dr. Florence E. Allen, University of Wisconsin; Dr. Nathan Altshiller, University of Washington; Dr. D. F. Barrow, University of Texas; Dr. R. B. Robbins, Sheffield Scientific School; Mr. C. H. Yeaton, University of Chicago. Fifteen applications for membership in the society were received.

At the annual election the following officers and members of the council were chosen:

President—E. W. Brown.

Vice-presidents—F. R. Moulton, Oswald Veblen.

Secretary—F. N. Cole.

Treasurer—J. H. Tanner.

Librarian—D. E. Smith.

Committee of Publication—F. N. Cole, Virgil Snyder, J. W. Young.

Members of the Council—G. D. Birkhoff, O. E. Glenn, R. G. D. Richardson, W. H. Roever.

The total membership of the society is now 722, including 72 life members. The treasurer's report shows a balance of \$9,461.75. Sales of publications during the past year amounted to \$1,843.67. The library now contains about 5,100 volumes, exclusive of unbound dissertations.

A most agreeable social concomitant of the annual meeting was the dinner and smoker at the Yale Club on Friday evening. Seventy members took advantage of this opportunity to renew and extend the acquaintance which is one of the valued objects of the society.

The following papers were read at this meeting:

L. P. Eisenhart: "Transformations of surfaces Ω ."

L. L. Silverman: "On the notion of summability for the limit of a function of a continuous variable."

A. B. Coble: "A configuration in finite geometry."

A. B. Coble: "The elliptic norm curve in S_4 ."

J. E. Rowe: "The symmetric and actual form of certain combinants of two binary n -ics."

Arthur Ranum: "On the differential geometry of the cyclic (circled) surfaces."

A. B. Frizell: "An enumeration of integral algebraic polynomials."

Dunham Jackson: "Expansion problems with irregular boundary conditions."

G. M. Green: "Hypersurfaces and families of curves defined by solutions of a partial differential equation of the second order."